

FAAM facility for airborne atmospheric measurements

FLIGHT FOLDER



Flight No.: B049
 Date: 05 Sep 2004
 Take Off: 09:41:53
 Landing: 14:32:58
 Flight Time: 4h51m05

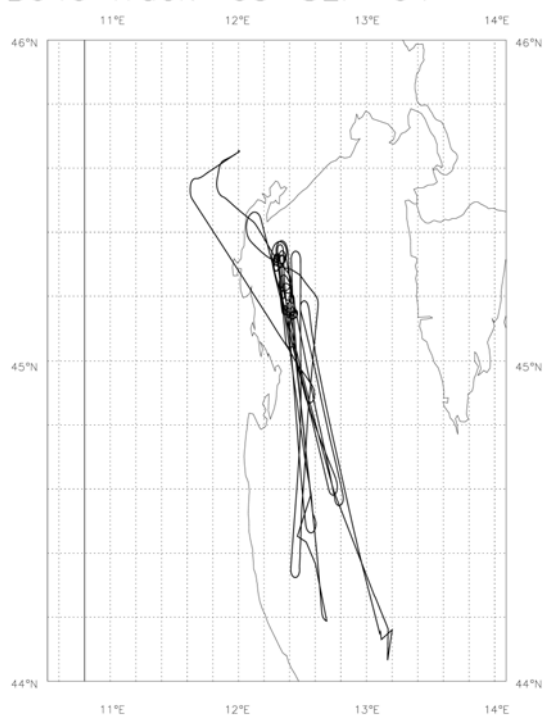
Trials Instructions: ADRIEX – radiation flight in heavy pollution over Adriatic.

Operating Area: Northern Adriatic Sea in the vicinity of the Ocean Tower at 45°18'51"N, 12°30'29"E and area within ~ 80 miles

| POB | Position | Name | Institute |
|-----|-------------------------|------------------|-----------------------------|
| 1 | Captain | Alan Foster | Directflight |
| 2 | Co-pilot | Alan Roberts | Directflight |
| 3 | Co-pilot | Ian Ramsay-Rae | Directflight |
| 4 | Mission Scientist 1 | Ellie Highwood | Reading University |
| 5 | Flight Manager | Maureen Smith | FAAM |
| 6 | Dropsondes | Steve Devereau | FAAM |
| 7 | Core Chemistry | Doug Anderson | FAAM |
| 8 | CVI | Paul James | FAAM |
| 9 | VACC | Stuart Heath | FAAM |
| 10 | Cloud Physics | Martyn Pickering | Met Office |
| 11 | SWS | Andy Wilson | Met Office |
| 12 | Filters | Paola Formenti | CNRS/University of Paris 12 |
| 13 | AMS | Paul Williams | UMIST |
| 14 | TDL / WAS / PAN / Tubes | Jim McQuaid | Leeds University |
| 15 | Nephelometer / PSAP | Jolene Cook | Reading University |
| 16 | Mission Scientist 2 | Jim Haywood | Met Office |
| 17 | Mission Scientist 3 | Simon Osborne | Met Office |
| 18 | CCM | Sue Angold | Directflight |
| 19 | | | |
| 20 | | | |

Flight Track:

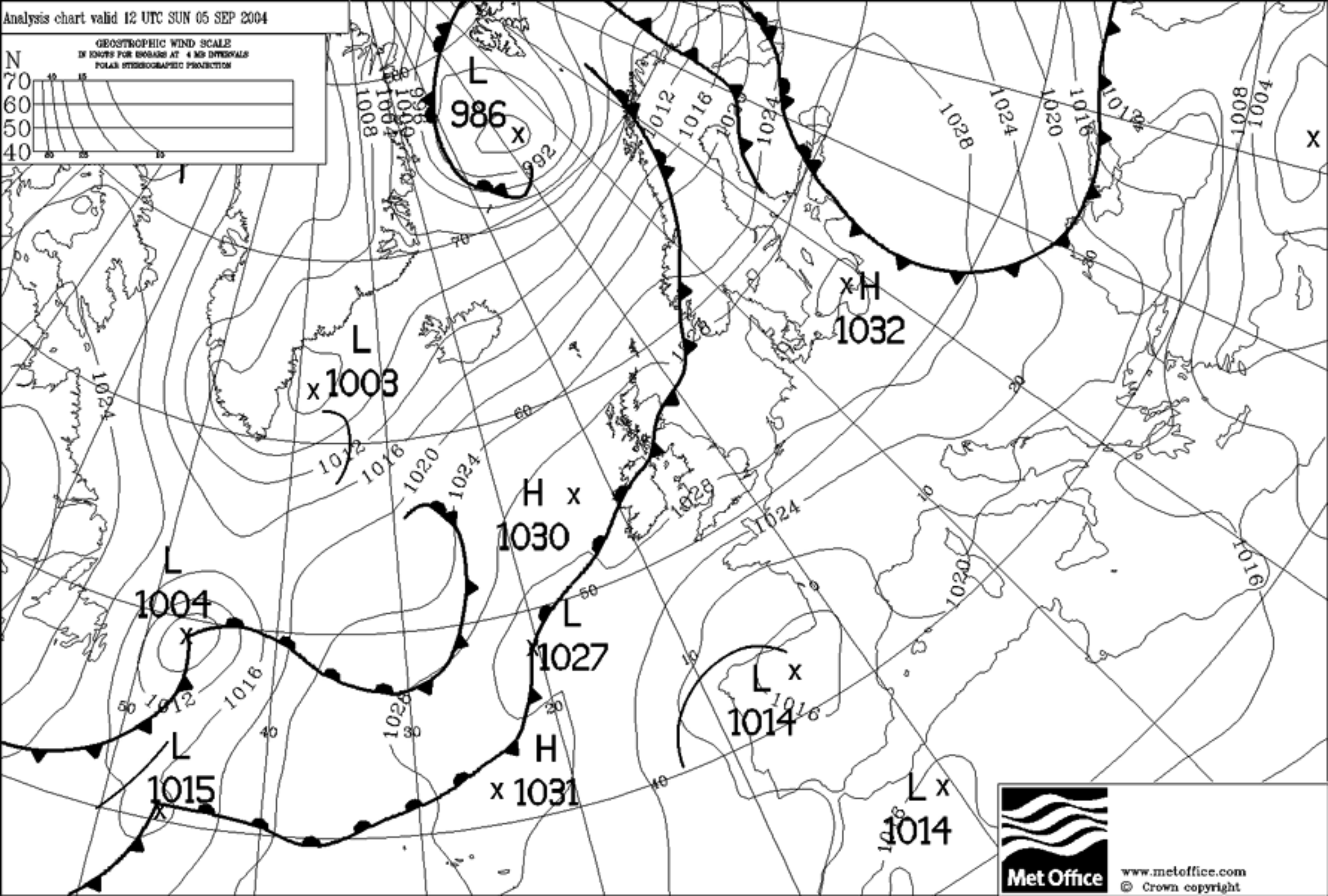
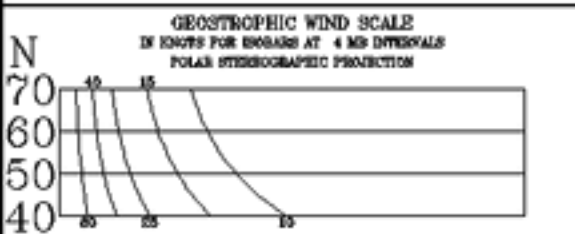
B049 Track 05-SEP-04



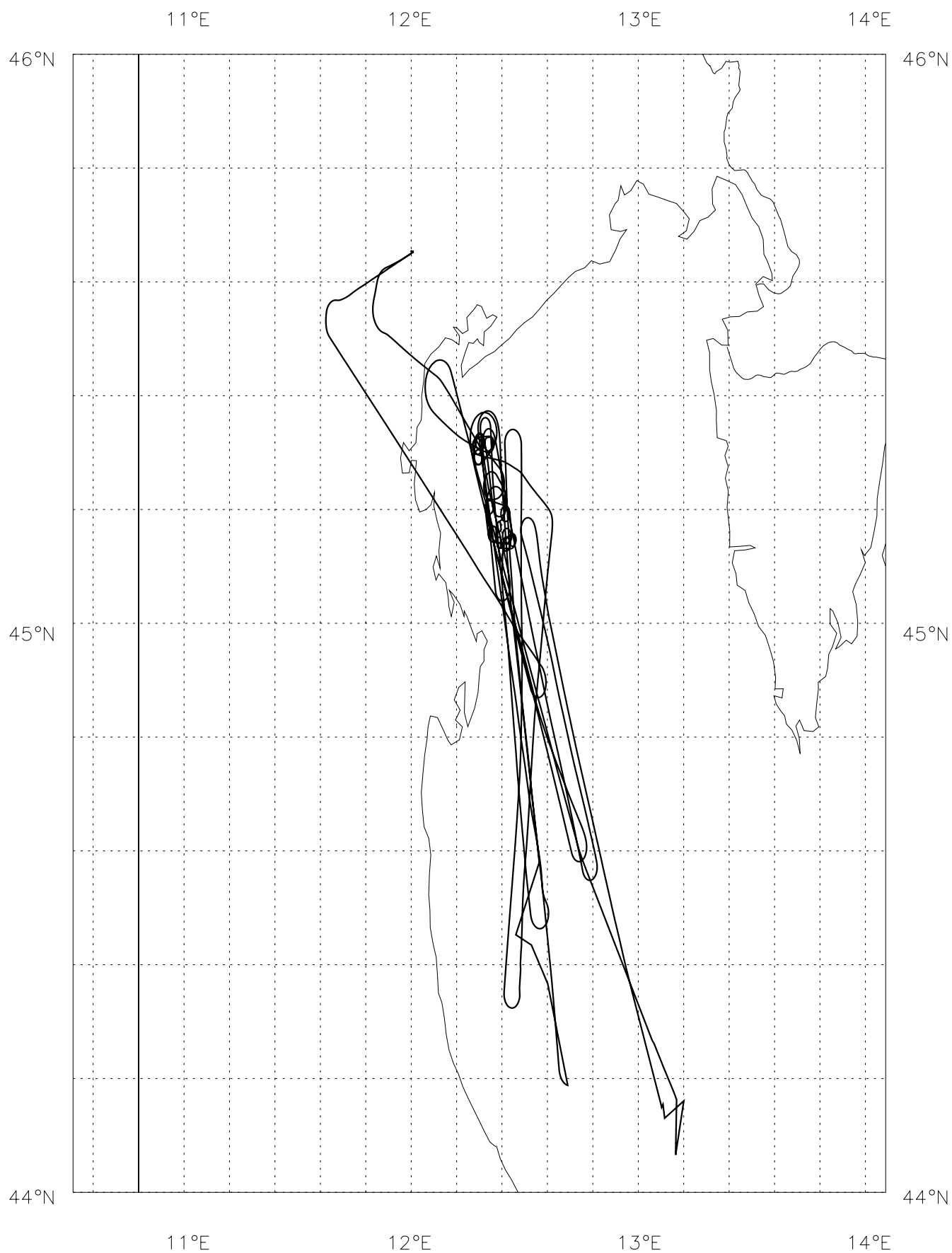
FLIGHT SUMMARY

Flight No B049
Date: 05/09/04
Project: ADRIEX
Location: N. Adriatic

| Start Time ----- | End Time ----- | Event | Height (s) ----- | Hdg Comments --- ----- |
|------------------------|----------------------|------------|---------------------|---------------------------|
| 064500 | | UBBRs | -.27 kft | 024 Covers Off |
| 074336 | | INU | -.27 kft | 024 To NAVIGATE |
| 081357 | | INU | -.27 kft | 024 To ALIGN |
| 090949 | | INU | -.26 kft | 024 To NAVIGATE |
| 094153 | | T/O | 1.6 kft | 254 Treviso |
| 095158 | 095521 | Profile 1 | 5.0 - 2.0 kft | 167 500fpm from 3kft |
| 095708 | 100132 | Profile 1 | 2.0 - 0.05 kft | 344 |
| 100325 | 100930 | Profile 2 | 0.05 - 3.1 kft | 173 500fpm |
| 100940 | 101633 | Profile 2 | 3.3 - 10.0 kft | 167 1000fpm |
| 101858 | 102438 | Profile 2 | 10.0 - 15.0 kft | 358 |
| 103032 | | Sonde | 15.0 kft | 349 Launch 01, on RFC |
| 103247 | 103755 | Profile 3 | 15.0 - 10.0 kft | 170 1000fpm |
| 103756 | 103925 | Run 1 | 10.0 - 10.2 kft | 165 climb 300ft |
| 103932 | 104800 | Run 1 | 10.2 kft | 166 |
| 104951 | 105544 | Profile 4 | 10.4 - 4.7 kft | 343 |
| 105544 | 110756 | Run 2 | 4.7 kft | 354 |
| 110939 | 111212 | Profile 5 | 4.7 - 2.5 kft | 178 1000fpm to 3kft |
| 111218 | 111353 | Profile 5 | 2.4 - 2.0 kft | 177 500fpm |
| 111353 | 112527 | Run 3 | 2.0 kft | 180 Into Sun |
| 112735 | 113054 | Profile 6 | 2.0 kft - 100ft | 007 500fpm 2kft - 100ft |
| 113054 | 114055 | Run 4 | 100ft | 008 |
| 114158 | | PSAP | 0.12 kft | 347 Change Filter |
| 114631 | 114800 | Orbit 1 | 500ft | 323 40deg, RH, start 330 |
| 114929 | 115059 | Orbit 2 | 500ft | 140 Start 150 |
| 115211 | 115336 | Orbit 3 | 500ft | 297 Start 300 |
| 115441 | 115610 | Orbit 4 | 500ft | 077 Start 090 |
| 120323 | 120449 | Orbit 5 | 500ft | 148 40deg,RH,start 150 |
| 120549 | 120716 | Orbit 6 | 500ft | 228 Start 240 |
| 120821 | 120948 | Orbit 7 | 500ft | 328 Start 330 |
| 121101 | 121226 | Orbit 8 | 500ft | 040 Start 060 |
| 121707 | 122709 | Run 5 | 100ft | 161 |
| 122730 | 123003 | Profile 7 | 0.10 - 2.0 kft | 158 |
| 123148 | 124149 | Run 6 | 2.0 kft | 343 |
| 124330 | 124506 | Profile 8 | 2.0 - 2.7 kft | 160 500fpm |
| 124527 | 124656 | Profile 8 | 3.1 - 5.0 kft | 159 1000fpm |
| 124657 | 130204 | Run 7 | 5.0kft | 155 |
| 130348 | 130902 | Profile 9 | 5.0 - 10.0 kft | 333 |
| 130636 | | Videos | 7.5 kft | 330 Change Tapes |
| 130915 | 132107 | Run 8 | 10.0 - 10.5 kft | 331 |
| 132135 | 132641 | Profile 10 | 10.5 - 15.0 kft | 338 1000fpm |
| 133711 | 134519 | Profile 11 | 15.0 - 7.7 kft | 152 1000fpm |
| 134720 | 135423 | Profile 11 | 7.7 - 1.0 kft | 329 |
| 135650 | 135747 | Orbit 9 | 1000ft | 036 55deg,RH,start 060 |
| 135830 | 135930 | Orbit 10 | 1000ft | 156 Start 150 |
| 140038 | 140129 | Orbit 11 | 1000ft | 338 Start 330 |
| 140204 | 140252 | Orbit 12 | 1000ft | 021 Start 060, 58 bank |
| 140533 | 141048 | Profile 12 | 1.0 - 6.0 kft | 161 1000fpm |
| 141302 | 141626 | Profile 12 | 6.0 - 9.0 kft | 314 1000fpm |
| 143258 | | Land | -.19 kft | 027 Treviso |
| 143650 | | GPS Posn | -.19 kft | 027 45'39.20N,012'12.13E |



B049 Track 05-SEP-04



FAAM Sortie Brief

Flight number: B049

Date 4th September 2004

Purpose: ADRIEX flight over Northern Adriatic and along the Po Valley

Weather: Predominantly cloud free. Heavy pollution preferred.

Flight pattern

1. Take off Treviso 08:00Z
2. Transit to Point A at low level but including period at 5000ft (10mins)
3. Interrupted profile ascent from 50' to FL150 over point A. (Ocean Tower: 45°18'50''N, 12°30'28''E) (30mins)
4. Dropsonde #1 at FL150
5. Stacked profile descent with ~4 SLRs of 10 minute duration oriented into and down sun at various levels to be determined by the aircraft scientist over point A (90 mins)
6. Set of banked orbits over point A at the solar zenith angle (~40deg) at 500ft or above any marine boundary layer pollution as advised by the aircraft scientist. (100mins)
7. Holding pattern for 10 minutes (110mins)
8. Set of banked orbits over point A at the solar zenith angle (~40deg) at 500ft or above any marine boundary layer pollution as advised by the aircraft scientist. (100mins)
9. Interrupted profile ascent from 500ft to 3000ft over point A (110mins)
10. SLR at 3000ft from A to point B (44°30'N, 12°00'E) (125 mins)
11. SLR at 3000ft from B to point C at Soave (45°25'N, 11°15'E) (145 mins)
12. SLR at 3000ft from C to point D at Reggio Nell Emilia (44°42'N, 10°32'E) (160 mins)
13. SLR at 3000ft from D to point E at (45°30'N, 10°00'E) (175 mins)
14. Profile ascent to FL150 from E to point D (190mins)
15. Profile descent to FL150 to 3000ft from D to point C (205mins)
16. SLR at 3000ft from C to point B (225mins)
17. SLR at 3000ft from B to point A (240mins)
18. Set of banked orbits over point A at the solar zenith angle (~40deg) at 500ft or above any marine boundary layer pollution as advised by the aircraft scientist. (260mins)
19. Holding pattern for 10 minutes (270mins)
20. Set of banked orbits over point A at the solar zenith angle (~40deg) at 500ft or above any marine boundary layer pollution as advised by the aircraft scientist. (280mins)
21. Interrupted profile ascent from 50ft to FL150 over point A (295mins)
22. Dropsonde #2 at FL150
23. Recover to Treviso.

| | |
|------------------------------|--------------------------|
| Point A Ocean Tower | 45°18'50''N, 12°30'28''E |
| Point B | 44°30'N, 12°00'E |
| Point C (Soave) | 45°25'N, 11°15'E |
| Point D (Reggio Nell Emilia) | 44°42'N, 10°32'E |
| Point E | 45°30'N, 10°00'E |

Sortie Debrief

Flight Number: B049

Date: 5th September 2004

Sortie Objectives: ADRIEX radiation flight in heavy pollution over Adriatic.

Operating area: Northern Adriatic Sea in the vicinity of the Ocean Tower at 45°18'51''N, 12°30'29'E and area within ~ 80 miles.

Weather: Clear skies over operating region, although Cu over land areas, especially to North and East. Very hazy

Flight Patterns:

Take off from Treviso at ~08:00. Very hazy. Transit to point A at 5000ft. Profile descent to low level and profile ascent from 50' to FL150. A well mixed marine boundary layer was visible, with a change in aerosol characteristics around 4000ft. The aerosol top was clearly defined around 7000ft, although another very thin layer was seen and detected at high altitude on this first profile (Alaskan haze?). Dropsonde number 1 was released over the ocean tower from FL150. A stacked descent consisting of straight and level runs oriented into- and down- sun at 10300ft (in elevated pollution layer), 5000ft, 2000ft and 100ft was performed with SWS filters in and PCASP heaters on. Two sets of 4 banked orbits (at solar zenith angle ~ 40deg) were performed at 5000ft. A stacked ascent with SLRs oriented up and down the Adriatic was then performed with SWS filters out and SWS oriented to look down to characterise the sea surface reflectance. PCASP heaters off. No sign of the elevated layer was visible in this profile, in contrast to the earlier descent. A profile ascent to FL150 repositioned us over point A. Dropsonde 2 was not launched due to the prohibitive length of waiting for clearance from Venice air traffic control. A profile descent to 1000ft was followed by 4 "super-orbits" performed at a bank angle of 55-61 degrees). Finally a profile ascent was completed to 9000ft above the aerosol layer before recovery to Treviso.

Summary:

A very successful flight for radiation measurements in near perfect meteorological and pollution conditions. Good orbits and into-and down sun runs. Lower BBRs measured $\sim 55 \text{ W m}^{-2}$ during 100ft runs, and showed correlation with aerosol on others. Aerosol optical depth from the ground measurements was ~ 0.43 , and our observations of the aerosol layer agreed qualitatively with the lidar. Mystery elevated layer possibly large particles, but very few in number. Not detected on return. Nephelometer appears to be logging better after changing the DLU during the down day.

Problems:

15 minutes of missing data from AMS, but no vacuum was lost.
PCASP (wing mounted) is missing the first three channels.

FL100 15min \nearrow FL150 Sonde 02
 \searrow 1000'
'A'

set of 4 orbits $\pm 5^\circ$

1008, 3 1/2,

3 1/2

Aircraft Scientist's Log

Flight No **B049**.....Date **5/9/04**.....Page **1**..... of **6**.....

FAAM © 2004

| GMT | Run / Profile | Height | Hdg | GPS Position | Remarks (clouds, weather, visibility, winds, sea state etc.) |
|--------|----------------|---------|-----|--------------------|---|
| | T/O | | | TREVISO | Note: T/O delayed due to mechanical issues on plane |
| 0944 | T/O | | | TREVISO | Very hazy, Cirrus to RH of aircraft, distant. |
| | | | | | Clear below, low visibility haze to at least 5000ft. |
| 095158 | P1 ↓ | 15000ft | | | Very hazy, |
| 095409 | | 3000ft | | | Ci to left of plane |
| 095524 | P1 ↓ | 2000ft | 165 | | haze interrupt |
| 095718 | P1 ↓ | | | | recommence |
| 095925 | | | | | Sea state 2? Haze |
| 100027 | | 600ft | | | Passing over ship track. |
| 100132 | P1 and | 50ft | | | clear above |
| 100326 | P2 | 50' | | | T-φ gam, stable layer, |
| 100742 | | 2000 | | | mid + high level to left, haze |
| 101828 | | 10000 | | | |
| 101857 | P2 | 10000 | | | recommence, to Cu over land & Ci |
| 102045 | | 11640 | | | over land, very thin well defined layer above tops of Cu |
| | | | | | Neph peak @ 10250ft, |
| | | | | | large particles from A but very few. |
| | | | | | CO also shows |

Aircraft Scientist's Log

 Flight No **B049**

 Date **5/9/04**

 Page **2** of **6**

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| GMT | Run / Profile | Height | Hdg | GPS Position | Remarks (clouds, weather, visibility, winds, sea state etc.) |
|----------------|---------------|----------------|-----|--------------|---|
| 103756 | | | | | 1st 1/2 out of plume, |
| 104000 | | 10300 | | | 2nd pair 1040 peaks |
| | | | | | 79-84 CO well |
| | | | | | correlated with neph |
| 104633 | | 10300 | | | |
| 104800 | Rland | 10300 | | | |
| 105002 | P4↓ | 10300 →5000 | | | Well defined neph & CO plume. |
| | | | | | WAS bottles & filters |
| | | | | | Cu over land |
| | | | | | Then high alt layer visible |
| | | | | | above clouds |
| 105545 | P4↓ | 5000 | | | |
| 105545 | R2 | 5000 | | | hazy layer below |
| 105849 | R2 | 5000 | | | CN 3000, PSASP 500 |
| | | | | | Mid & high level cloud to |
| | | | | | right |
| 110856 | R2 | 5000 | | | turning right, dark layer visible |
| 4th | | | | | above. |
| 110939 | P5↓ | 5000 →2000 | | | Hazy - no horizon ahead |
| 111440 | P5ord | | | | |
| 111840 | R3 | 2000 | | | Core chem calib @ start of run |
| | | | | | SWS good data in this period. |
| | | | | | Hazy, clear above & below |
| 11224 | | 2000 | | | OJings to RHSP of rocket. |
| | | | | | Hazy, mid & high level to |

the LHS

Aircraft Scientist's Log

 Flight No **B.049**

 Date 5/9/04

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| GMT | Run / Profile | Height | Hdg | GPS Position | Remarks (clouds, weather, visibility, winds, sea state etc.) |
|-------------------|---------------|-----------------|-----|--------------|---|
| 112527 | R3 end | | | | Oil rigs ahead & below (gas platforms) |
| 112735 | R6 | 2000 → 100gr | | | |
| 113054 | R4 | 100gr | | | Sea state 1,2 Core chain calib. Some SWS orientation problems |
| 113725 | | | | | Cloud to east, not interfering |
| 114054 | ↗ | 400gr | 330 | | 500gr orbits due to boats |
| 114651 | 01 | | | | 40° SZA SWS filters in |
| 114800 | 02 | 400gr | | | end orbit 1 clear above |
| 114930 | 02 | 400gr | 150 | | clear above, ocean blue visible |
| 115039 | 02 | | | | End orbit 2 |
| 115216 | 03 | | 300 | | clear above 40° SZA |
| 115334 | 03 | | | | end orbit 3 |
| 115442 | 04 | | 090 | | end orbit 4 |
| | | 600gr | | | SWS filters out Holding pattern |
| 120320 | start 05 | 500gr | 150 | | SWS out, SZA @ 40 clear above |
| 120457 | and 05 | | | | — 15 — |
| 120548 | 06 | 500gr | 240 | | SZA @ 40 clear above |
| 120717 | end 06 | 500gr | | | Haze thinner than earlier in flight. |
| 120820 | 07 | 500gr | 330 | | |
| 120948 | 07 | | | | End of orbit |

9.44
1215
150 mins
2.0
220

Aircraft Scientist's Log

Flight No **B049**...

Date **5/9/04**...

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| GMT | Run / Profile | Height | Hdg | GPS Position | Remarks (clouds, weather, visibility, winds, sea state etc.) |
|--------|---------------|-------------|-----|--------------|---|
| 121100 | 08 | 500ft | 060 | | Start orbit |
| 121223 | 08 | 500ft | | | End orbit |
| | | | 155 | | SWS filters out, 6° angle to avoid pitch to sea surface |
| | | | | | Core chem calib @ start of run |
| | | | | | PCASP heaters off |
| 121708 | R5 | 100ft | | | BBRs 50 Wm ⁻² as expected |
| 122037 | | | | | Core chem calib done |
| 122557 | | | | | BBRs dropping away from coast range 59 → 54 |
| 122730 | R5 | | | | Peak in nephs at end is power station?? |
| 122730 | P7 | 100 → 2000 | | | Curves to left hand side |
| 123000 | P7 | | | | End profile, turn to return to pt A. |
| 123147 | R6 | 2000 | 338 | | Start of run. |
| 124335 | P8 | 2000 - 5000 | | | |
| 124703 | R7 | 5000 | 155 | | Start of run |
| | | | | | Missing chunk in 1255-1258 ¹²⁵⁵⁻¹²⁵⁸ |
| | | | | | regained @ 13.01.33 |
| | | | | | High cloud to left. |
| 130202 | R7 | 5000 | | | |
| 130358 | P9 | | | | Drop off of O ₃ & CO in bed |
| | | | | | few seconds |
| 130908 | R8 | 12100 | | | Run to lode for phone |

165mins

Aircraft Scientist's Log

Flight No **B.049**

Date 5/9/04

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| GMT | Run / Profile | Height | Hdg | GPS Position | Remarks (clouds, weather, visibility, winds, sea state etc.) |
|--------|----------------------------|---------|-----|--------------|--|
| 132157 | | | | | |
| 132135 | P107 FL100-7150 | | | | Climbing out of pollution layer pretty nonexistent. |
| | | | | | A Very hazy below |
| 132442 | | | | | Cu to above level of over mountains, capping haze |
| | | | | | now, separate layer no longer visible, some Ci above over land, but not affecting mtr. |
| 132639 | P107 FL150 | | | | |
| | | | | | Dropsonde #2 aborted due to 2 much traffic |
| | | | | | Holding pattern @ FL150 due to aircraft traffic. |
| | | | | | Cloud over land, Cu over Ci over mountains |
| 133712 | P111 | | | | Profile descent |
| 133929 | | | | | Dark grey/brown haze by visible below. |
| 134520 | | 8000ft. | | | Interrupt P11, turn toward A Brown aerosol layer with cleaner str above but under tops of Cu. Some evidence of layering in structure |

Aircraft Scientist's Log

 Flight No **B.049**.....

 Date 5/9/04.....

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| GMT | Run / Profile | Height | Hdg | GPS Position | Remarks (clouds, weather, visibility, winds, sea state etc.) |
|--------|---------------|---------------|-----|--------------|--|
| 134720 | P11 | | | | Recommence profile back towards A. |
| | | | | | well defined top to cloud layer @ 7000ft |
| | | 7000ft | | | in neph → earlier high layer not visible at this time in P11. |
| | | | | | Evidence of layering in neph peak @ 7000 ft, gap @ 6, then rising again as descent |
| 135424 | P11 | 1000ft | | | end |
| 135650 | 09 | | | | |
| 135830 | 010 | | | | 4 Orbits @ SZA +17 SWS Gibbers out (up to 61° bank) |
| | 011 | | | | |
| 140038 | 012 | | | | |
| | | | | | |
| 140533 | P12 | 1000 → 9000ft | | | out of top of haze layer |
| | | | | | Tail Cu to north-east over land. |
| 141636 | P12 end | 9000ft | | | End of profile. |
| | | | | | Haze layers clearly visible |

CLOUD PHYSICS LOG

Flight No. B049

Date: 5/9/04

Operator: MAP

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| G.M.T. DRS Time | PCASP | | FSSP | SID1 | 2D2-C | | | 2D2-P | | | Remarks |
|--------------------|---------|--------|----------------|----------------|--------|----------|-------|---------|----------|-------|------------------------------|
| | Conc/cc | Mean R | Block Transfer | Particle Count | Conc/L | Max Size | Habit | Conc/m3 | Max Size | Habit | |
| 09:51:50 | 600 | | 0 | 5 | | | | | | | Start Profile 1 from 5000' |
| 09:52:16 | 660 | | | 3 | | | | | | | 4000' |
| 09:53:45 | 980 | | Overheat | 5 | | | | | | | 3000' |
| 09:55:26 | 1000 | | | 3 | | | | | | | 2000' |
| 09:58:50 | 1050 | | | 3 | | | | | | | 1000' |
| 10:00:40 | 900 | | | 5 | | | | | | | 500' |
| 10:01:34 | 1000 | | | 10 | | | | | | | End of Profile 1 @ 50' |
| 10:03:26 | 890 | | | 10 | | | | | | | Start Profile 2 from 50' |
| 10:06:10 | 820 | | | 5 | | | | | | | FL010 |
| 10:08:14 | 800 | | | 5 | | | | | | | FL020 |
| 10:09:25 | 610 | | | 5 | | | | | | | FL030 |
| 10:10:25 | 500 | | | 2 | | | | | | | FL040 |
| 10:11:28 | 450 | | On | 2 | | | | | | | FL050 |
| 10:12:24 | 360 | | 0 | 2 | | | | | | | FL060 |
| 10:13:26 | 100 | | | 1 | | | | | | | FL070 |
| 10:14:25 | 5 | | | | | | | | | | FL080 |
| 10:15:27 | 5 | | | | | | | | | | FL090 |
| 10:16:35 | 5 | | | | | | | | | | FL100 |
| 10:20:10 | 5 | | | | | | | | | | FL110 |
| 10:21:20 | 5 | | | | | | | | | | FL120 |
| 10:22:30 | 5 | | | | | | | | | | FL130 |
| 10:23:35 | 3 | | | | | | | | | | FL140 |
| 10:24:43 | 5 | | | | | | | | | | End of Profile 2 @ FL150 |
| 10:32:51 | 3 | | | | | | | | | | Start Profile 3 from FL150 |
| 10:33:55 | 15 | | | | | | | | | | FL140 |
| 10:35:05 | 15 | | | | | | | | | | FL130 |
| 10:36:01 | 15 | | | | | | | | | | FL120 |
| 10:36:51 | 60 | | | | | | | | | | FL110 |
| 10:37:58 | | | | | | | | | | | End of P3 Start Run1 @ FL100 |
| 10:38:00 | 30 | | | 1 | | | | | | | |
| 10:40:00 | 10 | | | | | | | | | | |
| 10:42:00 | 60 | | | 2 | | | | | | | |

CLOUD PHYSICS LOG

Flight No. B049

Date: 5/9/04

Operator: MAP

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| G.M.T. DRS Time | PCASP | | FSSP | SID1 | 2D2-C | | | 2D2-P | | | Remarks |
|--------------------|---------|--------|----------------|----------------|--------|----------|-------|---------|----------|-------|-------------------------------|
| | Conc/cc | Mean R | Block Transfer | Particle Count | Conc/L | Max Size | Habit | Conc/m3 | Max Size | Habit | |
| 10:44:00 | 55 | | | 2 | | | | | | | |
| 10:46:00 | 5 | | | | | | | | | | |
| 10:47:51 | | | | | | | | | | | End Of Run1 |
| 10:49:55 | | | | | | | | | | | Start Profile 4 from FL100 |
| 10:51:22 | 5 | | | | | | | | | | FL090 |
| 10:52:30 | | | | | | | | | | | FL080 |
| 10:53:45 | 85 | | | 1 | | | | | | | FL070 |
| 10:54:35 | 360 | | | 2 | | | | | | | FL060 |
| 10:55:45 | | | | | | | | | | | End of P4 Start Run2 @ 5000' |
| 10:56:00 | 500 | | | 2 | | | | | | | |
| 10:58:00 | 460 | | | 2 | | | | | | | |
| 11:00:00 | 700 | | | 2 | | | | | | | |
| 11:02:00 | 570 | | | 2 | | | | | | | |
| 11:04:00 | 560 | | | 5 | | | | | | | |
| 11:06:00 | 515 | | | 2 | | | | | | | |
| 11:07:57 | | | | | | | | | | | End of Run 2 |
| 11:09:40 | | | | | | | | | | | Start Profile 5 from 5000' |
| 11:10:49 | 660 | | | 5 | | | | | | | 4000' |
| 11:12:00 | 1020 | | | 5 | | | | | | | 3000' |
| 11:13:56 | 1030 | | | 5 | | | | | | | End of P5 Start Run 3 @ 2000' |
| 11:14:00 | 1040 | | | 5 | | | | | | | |
| 11:16:00 | 1000 | | | 5 | | | | | | | |
| 11:18:00 | 800 | | | 5 | | | | | | | |
| 11:20:00 | 800 | | | 5 | | | | | | | |
| 11:22:00 | 760 | | | 5 | | | | | | | |
| 11:24:00 | 800 | | | 5 | | | | | | | |
| 11:25:27 | | | | | | | | | | | End of Run 3 |
| 11:27:35 | 850 | | | 5 | | | | | | | Start Profile 6 from 2000' |
| 11:29:23 | 850 | | | 5 | | | | | | | 1000' |
| 11:30:55 | | | | | | | | | | | End of P6 Start Run 4 @ 100' |
| 11:31:00 | 950 | | | 5 | | | | | | | |
| 11:33:00 | 900 | | | 5 | | | | | | | |

CLOUD PHYSICS LOG

Flight No. B049

Date: 5/9/04

Operator: MAP

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| G.M.T. DRS Time | PCASP | | FSSP | SID1 | 2D2-C | | | 2D2-P | | | Remarks |
|--------------------|---------|--------|----------------|----------------|--------|----------|-------|---------|----------|-------|-------------------------------------|
| | Conc/cc | Mean R | Block Transfer | Particle Count | Conc/L | Max Size | Habit | Conc/m3 | Max Size | Habit | |
| 11:35:00 | 860 | | | 5 | | | | | | | |
| 11:37:00 | 850 | | | 5 | | | | | | | |
| 11:39:00 | 830 | | Overheat | 5 | | | | | | | |
| 11:40:58 | | | | | | | | | | | End of Run 4 |
| 11:46:31 | | | | | | | | | | | Start Orbits |
| 11:56:10 | | | | | | | | | | | End of Orbits |
| 12:03:23 | | | | | | | | | | | Start Orbits |
| 12:12:26 | | | | | | | | | | | End Orbits |
| 12:17:10 | | | On | | | | | | | | Start Run 5 @ 100' |
| 12:18:00 | 860 | | | 5 | | | | | | | |
| 12:20:00 | 930 | | | 5 | | | | | | | |
| 12:22:00 | 850 | | | 5 | | | | | | | |
| 12:24:00 | 1000 | | | 5 | | | | | | | |
| 12:26:00 | 950 | | | 5 | | | | | | | |
| 12:27:10 | | | | | | | | | | | End Run 5 Start Profile 7 from 100' |
| 12:28:30 | 940 | | | 5 | | | | | | | 1000' |
| 12:30:05 | 740 | | | 5 | | | | | | | End of Profile 7 @ 2000' |
| 12:31:48 | | | Overheat | | | | | | | | Start Run 6 @ 2000' |
| 12:32:00 | 780 | | | 5 | | | | | | | |
| 12:34:00 | 800 | | | 3 | | | | | | | |
| 12:36:00 | 1000 | | | 3 | | | | | | | |
| 12:38:00 | 950 | | | 3 | | | | | | | |
| 12:40:00 | 800 | | | 5 | | | | | | | |
| 12:41:49 | | | | | | | | | | | End of Run 6 |
| 12:43:31 | 680 | | | 5 | | | | | | | Start Profile 8 from 2000' |
| 12:44:59 | 640 | | | 5 | | | | | | | 3000' |
| 12:46:00 | 580 | | | 5 | | | | | | | 4000' |
| 12:47:00 | | | On | | | | | | | | End of P8 Start Run 7 @ 5000' |
| 12:48:00 | 600 | | | 5 | | | | | | | |
| 12:50:00 | 660 | | | 5 | | | | | | | |
| 12:52:00 | 680 | | | 5 | | | | | | | |
| 12:54:00 | 780 | | | 5 | | | | | | | |

CLOUD PHYSICS LOG

Flight No. B049

Date: 5/9/04

Operator: MAP

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| G.M.T. DRS Time | PCASP | | FSSP | SID1 | 2D2-C | | | 2D2-P | | | Remarks |
|--------------------|---------|--------|----------------|----------------|--------|----------|-------|---------|----------|-------|-------------------------------|
| | Conc/cc | Mean R | Block Transfer | Particle Count | Conc/L | Max Size | Habit | Conc/m3 | Max Size | Habit | |
| 12:56:00 | 100 | | 0 | 1 | | | | | | | |
| 12:58:00 | 200 | | | 1 | | | | | | | |
| 13:00:00 | 800 | | | 1 | | | | | | | |
| 13:02:00 | | | | | | | | | | | |
| 13:02:08 | | | | | | | | | | | End of Run 7 |
| 13:03:50 | | | | | | | | | | | Start Profile 9 from 5000' |
| 13:05:21 | 7 | | | 1 | | | | | | | FL060 |
| 13:06:13 | 8 | | | | | | | | | | FL070 |
| 13:07:06 | 8 | | | | | | | | | | FL080 |
| 13:08:04 | | | | | | | | | | | FL090 |
| 13:09:05 | | | | | | | | | | | End of P9 Start Run 8 @ FL100 |
| 13:10:00 | 10 | | | | | | | | | | |
| 13:12:00 | 4 | | | | | | | | | | |
| 13:14:00 | 10 | | | | | | | | | | |
| 13:16:00 | 15 | | | | | | | | | | |
| 13:18:00 | 10 | | | | | | | | | | |
| 13:20:00 | | | | | | | | | | | |
| 13:21:10 | | | | | | | | | | | End of Run 8 |
| 13:21:38 | | | | | | | | | | | Start Profile 10 from FL100 |
| 13:22:21 | 7 | | | | | | | | | | FL110 |
| 13:23:18 | 3 | | | | | | | | | | FL120 |
| 13:24:16 | 3 | | | | | | | | | | FL130 |
| 13:25:27 | 3 | | | | | | | | | | FL140 |
| 13:26:40 | 3 | | | | | | | | | | End of Profile 10 @ FL150 |
| 13:37:16 | Noise | | | | | | | | | | Start Profile 11 @ FL150 |
| 13:38:20 | 10 | | | | | | | | | | FL140 |
| 13:39:07 | 10 | | | | | | | | | | FL130 |
| 13:40:10 | 15 | | | | | | | | | | FL120 |
| 13:41:23 | 20 | | | | | | | | | | FL110 |
| 13:42:32 | 25 | | | | | | | | | | FL100 |
| 13:43:43 | 35 | | | | | | | | | | FL090 |
| 13:44:51 | 30 | | | | | | | | | | FL080 |

CLOUD PHYSICS LOG

Flight No. B049

Date: 5/9/04

Operator: MAP

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[illegible]

| | | | | | |
|-------------------------------------|------------|------|----------|------------|-------|
| SWS/SHIMS PRE-FLIGHT LOG | | Date | 5/9/04 | Flight | B 049 |
| Operator(s) | A. WILSON | | Campaign | ADRIEX | |
| Departure | 05094155 Z | | Arrival | 05143300 Z | |

Physical system setup

| Module Number Serial. | Connection(e.g.SWS nir, SHIMS upper) |
|--------------------------|--------------------------------------|
| 0 | SWS NIR |
| 27581 | SWS VIS |
| | |
| | |
| | |
| | |

System functionality check

After system stabilizes

| | | | | |
|----------------------|----------------------|--------|---------|---------|
| PC to DRS Time error | $t_{PC} = t_{DRS} +$ | 0 secs | at time | 074600Z |
| Freezer temp | -7°C | @ | 074600Z | |

SWS FLIGHT LOG SHEET

| Flight # | B 049 | Date | 5/9/04 | Operator(s) | A. Wilson | log page | 1 | of | |
|----------|--------|--------|----------|-------------|-----------|----------|---|----|--|
| Time | Run id | Alt/FL | Mirr Pos | Int Times | | Remarks | | | |
| | | | | Vis | NIR | | | | |

| | | | | | | | | | |
|----------|----|----------|------|------|--|--|--|--|--|
| 074715 Z | | | | | | DARK current - PRE TAKE-off | | | |
| 075215 Z | | | | | | DATA START | | | |
| 075500 Z | | | | | | VIDEO START | | | |
| 081100 Z | | | | | | TAKE off Delayed by 1 Hour | | | |
| | | | | | | due to hydraulics problem !! | | | |
| | | | | | | VIDEO STOP - rewind & | | | |
| 085800 Z | | | | | | DATA STOP | | | |
| 091500 Z | | | | | | ND3.0 Filters fitted to vis & NIR | | | |
| | | | | | | Prior to flight. | | | |
| 092706 Z | | | 90°A | | | VIDEO START | | | |
| 092748 Z | | | 90°A | | | DATA START - DARK current | | | |
| 093000 Z | | | 90°A | Auto | | DATA START | | | |
| 094155 Z | | | 90°A | | | TAKE off | | | |
| 094205 Z | | | 0° | | | | | | |
| 095330 Z | P1 | 030 | 180° | Auto | | | | | |
| 095158 | P1 | 050 → 03 | 0° | Auto | | Start P1 → 50ft. | | | |
| 095330 | P1 | 030 | 180° | Auto | | | | | |
| | P1 | 020 | 180° | Auto | | int P1 | | | |
| 095708 | P1 | 020 | 180° | Auto | | restart P1 | | | |
| 100132 | P1 | 50ft | 180° | Auto | | end P1 | | | |
| 100325 | P2 | 50ft | 180° | Auto | | Start P2 → FL150 | | | |
| 101640 | P2 | FL100 | 180° | Auto | | int P2 | | | |
| 101900 | P2 | 100 | 180° | Auto | | restart P2 | | | |
| 102445 | P2 | 150 | 180° | Auto | | end P2 | | | |
| 103032 | | 150 | 180° | Auto | | Sonde 1 launched | | | |
| 103247 | P3 | 150 | 180° | Auto | | | | | |
| 103610 | P3 | 11500 | 43°F | Auto | | | | | |
| 103756 | P3 | 100 | 46°F | Auto | | End P3 | | | |
| | R1 | 100 | 46°F | Auto | | into sun run. | | | |
| 104800 | R1 | 10300ft | 46°F | Auto | | end run 1 | | | |
| 105002 | P4 | 103 | 32°A | Auto | | P4 FL103 → 5000ft | | | |
| 105550 | P4 | 5000ft | 31°A | Auto | | | | | |
| | R2 | 5000ft | 31°A | Auto | | Down sun run. Zenith 38° Pitch 6.8° | | | |
| 110756 | R2 | 5000ft | 31°A | Auto | | Signal strengths appeared down. Video shows possible condensation? | | | |
| | | | | | | | | | |
| 110939 | P5 | 5000ft | 42°F | Auto | | start P5 → 2000ft. | | | |
| 111353 | P5 | 2000ft | 45°F | Auto | | end P5 | | | |
| 1118353 | R3 | 2000ft | 45°F | Auto | | Start R3 into sun run | | | |
| 112527 | R3 | 2000ft | 45°F | Auto | | end R3 | | | |
| 112735 | P6 | 2000ft | 33°A | Auto | | start P6 → 100ft down sun profile. | | | |
| 113054 | P6 | 100ft | 33°A | Auto | | | | | |
| | R4 | | 33°A | | | start R4 | | | |

*
Filters fitted

*

SWS FLIGHT LOG SHEET

| Flight # | B 049 | Date | 5/9/04 | Operator(s) | A. Wilson | log page | 2 | of | 3 |
|----------|--------|--------|----------|-------------|-----------|----------|---|----|---|
| Time | Run id | Alt/FL | Mirr Pos | Int Times | | Remarks | | | |
| | | | | Vis | NIR | | | | |

| | | | | | | | | | |
|--------|---------|--------|-------|------|----|--|--|--|--|
| 114055 | R4 | 100ft | 33° | Auto | | end R4 | | | |
| 114631 | orbit 1 | 500ft | 6°F | 10 | 30 | start orbit 1, 40° right wing down | | | |
| 114800 | " 1 | 500ft | 6°F | 10 | 30 | end 1 | | | |
| 114929 | " 2 | 500ft | 6°F | 10 | 30 | start 2 | | | |
| 115059 | " 2 | 500ft | 6°F | 10 | 30 | end 2 | | | |
| 115211 | " 3 | 500ft | 6°F | 10 | 30 | start 3 | | | |
| 115336 | " 3 | 500ft | 6°F | 10 | 30 | end orbit 3 | | | |
| 115441 | " 4 | 500ft | 6°F | 10 | 30 | start 4 | | | |
| 115610 | " 4 | | | | | end 4 | | | |
| 120210 | | | | | | * Filters removed. | | | |
| 120323 | orbit 5 | 500ft | 6°F | 10 | 10 | start orbit 5 40° right wing down | | | |
| 120449 | " " | 400ft | 6°F | 10 | 10 | end 5 | | | |
| 120549 | " 6 | 400ft | 6°F | 10 | 10 | start 6 | | | |
| 120716 | " 6 | 400ft | 6°F | 10 | 10 | end orbit 6 | | | |
| 120821 | " 7 | 400ft | 6°F | 10 | 10 | start orbit 7 | | | |
| 120948 | " 7 | 400ft | 6°F | 10 | 10 | end 7 | | | |
| 121101 | " 8 | 400ft | 6°F | 10 | 10 | start 8 | | | |
| 121226 | " 8 | 400ft | | | | | | | |
| 121350 | | | 180° | Auto | | looking downward to characterise Sea surface | | | |
| 121500 | R5 | | 174°A | Auto | | correct per Aircraft Pitch. | | | |
| 121707 | R5 | 100ft | 174°A | Auto | | end start R5 @ 100ft | | | |
| 122709 | R5 | 100ft | 174°A | Auto | | end R5 | | | |
| 122730 | P7 | 100ft | 174°A | Auto | | start P7 → 2000ft | | | |
| 123000 | | | | | | Video stop | | | |
| 123005 | P7 | 2000ft | 174°A | Auto | | end P7 | | | |
| 123054 | | | | | | Video start | | | |
| 123148 | R6 | 2000ft | 174°A | Auto | | start of R6 @ 2000ft | | | |
| 124149 | R6 | 2000ft | 174°A | Auto | | end R6 | | | |
| 124330 | P8 | 2000ft | 174°A | Auto | | start P8 → 5000ft | | | |
| 124657 | P8 | 5000ft | 174°A | Auto | | end P8 @ 5000ft | | | |
| | R7 | 5000ft | 174°A | | | start R7 @ 5000ft | | | |
| | R7 | | | | | end R7 | | | |
| 130348 | P9 | 5000ft | 174°A | Auto | | start P9 → PL100 | | | |
| 130902 | P9 | 10000 | 174°A | Auto | | end P9 @ PL100 | | | |
| | R8 | 100 | 174°A | Auto | | start R8 | | | |
| 132107 | R8 | 100 | 174°A | Auto | | | | | |
| 132135 | P10 | 100 | 174°A | Auto | | start P10 → PL150 | | | |
| 132641 | P10 | 150 | 174°A | Auto | | end P10 @ PL150 | | | |
| | P11 | 150 | 176°A | Auto | | | | | |
| | P11 | 080 | 176°A | Auto | | int P11 | | | |
| | P11 | 080 | 176°A | Auto | | | | | |
| | P11 | 1000ft | 176°A | Auto | | | | | |

Filters
fitted

Filters
NOT
fitted

| SWS FLIGHT LOG SHEET | | | | | | |
|----------------------|--------|--------|----------|-------------|-----|----------|
| Flight # | Bag | | Date | Operator(s) | | log page |
| | | | 5/9/04 | A. Wilson | | 3 of 3 |
| Time | Run id | Alt/FL | Mirr Pos | Int Times | | Remarks |
| | | | | Vis | NIR | |

of 3

NIR

Windy day

2. Her
not
fitted

CORE CHEMISTRY FLIGHT LOG

| | | | |
|--|------------------------|---|---------------------|
| FLIGHT: B049 | DATE: 5/09/2004 | OPERATOR: Doug Anderson | PAGE: 1 of 2 |
| LOCATION: Northern Adriatic Sea in the vicinity of the Ocean Tower at 45o18'51"N, 12o30'29'E and area within ~ 80 miles | | PROJECT: ADRIEX – radiation flight in heavy pollution over Adriatic. | |

| GAS CYLINDER PRESSURES | Argon/CO2 | N2 | CO | HORACE |
|------------------------|--------------------|-------------------|------------------|-----------|
| PRE FLIGHT | 2140 psi / 149 baR | 1310 psi / 91 bar | 630 psi / 45 bar | -- n/a -- |
| POST FLIGHT | psi / bar | psi / bar | psi / bar | -- n/a -- |

| TIME (GMT) | HEIGHT (Flight Level) | RUN # | CO SENSITIVITY (Hz/ppbV) | CO BACKGROUND (ppb) | CO BCKGRD.CNT.B (Hz) | CO CONC. (ppb V) | O3 (ppb) | NO (ppb) | NO2 (ppb) | NOx (ppb) | SO2 (ppb) | | | |
|---------------|--|-------------------|--------------------------------|-----------------------------|------------------------------|------------------------|---------------|---------------|----------------|----------------|----------------|-------|--------|-------|
| 03/09/04 | FL150 | - | 89.99 | 56.06 | 5045.13 | 61.376 | - | - | - | - | - | | | |
| 15:00:50 | Remarks: Last calibration from previous flight/ground test for comparison with today. | | | | | | | | | | | | | |
| 05/09/04 | ground | - | 90.03 | 57.78 | 5201.69 | - | - | - | - | - | - | | | |
| 05:44:46 | Remarks: First cal of day Air sample pipe (ASP) closed. CO cal max values : 567 – 527 | | | | | | | | | | | | | |
| 06:02:26 | Ground | - | 86.75 | 59.75 | 5183.35 | - | - | - | - | - | - | | | |
| | Remarks: ASP closed. CO cal max values : 515 – 503 | | | | | | | | | | | | | |
| 06:23:38 | ground | - | 83.81 | 61.34 | 5141.35 | - | - | - | - | - | - | | | |
| | Flow Lamp: | 33.90 | Press Monocr | 0.63 | Press Cell: | 7.14 | Press Cal Gas | 2.46 | Lamp °C | 50.00 | Monocr °C | 26.22 | PMT °C | 26.16 |
| | Remarks: ASP closed. CO cal max values : 512 – 505 | | | | | | | | | | | | | |
| 06:31:28 | ground | - | 82.68 | 62.20 | 5142.54 | 212.449 | - | - | - | - | - | | | |
| | Remarks: ASP closed. CO cal max values : 517 – 522 | | | | | | | | | | | | | |
| 07:32:16 | ground | - | 84.06 | 61.66 | 5183.32 | - | - | - | - | - | - | | | |
| | Remarks: ASP closed. CO cal max values : 534 - 539 | | | | | | | | | | | | | |
| 07:40:44 | ground | - | 84.44 | 61.35 | 5179.95 | - | - | - | - | - | - | | | |
| | Remarks: ASP closed. CO cal max values : | | | | | | | | | | | | | |
| 08:00:59 | ground | - | 90.57 | 60.16 | 5448.81 | 189.362 | - | - | - | - | - | | | |
| | Flow Lamp: | 33.96 | Press Monocr | 0.63 | Press Cell: | 7.14 | Press Cal Gas | 2.25 | Lamp °C | 50.00 | Monocr °C | 26.14 | PMT °C | 26.11 |
| | Remarks: Post Power changeover reboot and cal. ASP closed. CO cal max values : 593 - 562 | | | | | | | | | | | | | |
| 08:05:43 | ground | - | 85.59 | 61.75 | 5284.57 | - | - | - | - | - | - | | | |
| | Remarks: ASP closed. CO cal max values : 470 – 500 2 nd cal to ensure CO max is within range (can't see HORACE display from belted in position). It is now a little low! | | | | | | | | | | | | | |
| 09:03:38 | ground | | 84.28 | 61.85 | 5212.70 | | | | | | | | | |
| | Remarks: ASP closed. CO cal max values : 513 – 521 Delay due to hydraulic problems | | | | | | | | | | | | | |
| 09:33:25 | ground | Taxiing | 87.60 | 61.17 | 5358.43 | 164.229 | 50 | 0.11 | 2.43 | 2.54 | 4.99 | | | |
| | Flow Lamp: | 33.94 | Press Monocr | 0.62 | Press Cell: | 7.13 | Press Cal Gas | 2.25 | Lamp °C | 50.00 | Monocr °C | 26.15 | PMT °C | 26.10 |
| | Remarks: CO cal max values : 545 – 562 Post power change cal | | | | | | | | | | | | | |
| 09:38:25 | ground | Pre t/o | 85.10 | 62.04 | 5279.96 | 162.206 | 50 | 0.05 | 2.22 | 2.27 | 5.24 | | | |
| | Remarks: ASP closed. CO cal max values : 508 - 513 | | | | | | | | | | | | | |
| 09:51:34 | FL050 | - | 83.82 | 62.14 | 5208.74 | 118.864 | 61 | 0.00 | 0.70 | 0.70 | 4.54 | | | |
| | Flow Lamp: | 33.87 | Press Monocr | 0.61 | Press Cell: | 7.14 | Press Cal Gas | 2.24 | Lamp °C | 50.00 | Monocr °C | 26.36 | PMT °C | 26.31 |
| | Remarks: ASP open. CO cal max values : 515 - 519 | | | | | | | | | | | | | |
| 10:05:17 | 100' | In turn & into P2 | 83.59 | 62.33 | 5210.43 | 146.518 | 75 | 0.04 | 0.80 | 0.84 | 4.31 | | | |
| | Flow Lamp: | 33.88 | Press Monocr | 0.63 | Press Cell: | 7.16 | Press Cal Gas | 2.26 | Lamp °C | | Monocr °C | | PMT °C | |
| | Remarks: CO cal max values : 522 – 527 Cal ended @ FL010. | | | | | | | | | | | | | |
| 10:28:37 | FL150 | - | 83.81 | 60.98 | 5110.94 | 70.715 | 62 | 0.06 | 0.21 | 0.27 | 5.18 | | | |
| | Remarks: CO cal max values : 522 – 527 | | | | | | | | | | | | | |
| 10:52:15 | FL013 | Into P4 | 85.41 | 60.32 | 5151.96 | 67.422 | 49 | -0.03 | 0.17 | 0.13 | 4.33 | | | |
| | Remarks: CO cal max values : 531 – 537 P4 started 10:50:02, roughly half way through calibration. Cal ended @ FL085 | | | | | | | | | | | | | |
| 11:17:40 | FL020 | Into R3 | 87.24 | 59.62 | 5201.26 | 148.380 | 79 | -0.05 | 1.04 | 0.99 | 4.38 | | | |
| | Flow Lamp: | 33.91 | Press Monocr | 0.63 | Press Cell: | 7.15 | Press Cal Gas | 2.26 | Lamp °C | 50.00 | Monocr °C | 25.76 | PMT °C | 25.71 |
| | Remarks: CO cal max values : 535 - 541 | | | | | | | | | | | | | |
| 11:35:12 | FL001 | | 87.81 | 58.94 | 5175.50 | 159.214 | 76 | -0.01 | 0.97 | 0.96 | 4.08 | | | |
| | Remarks: CO cal max values : 527 - 532 | | | | | | | | | | | | | |
| 12:01:06 | FL004 | | 86.71 | 59.55 | 5163.54 | 156.761 | 74 | -0.04 | 1.14 | 1.09 | 5.06 | | | |
| | Flow Lamp: | 33.95 | Press Monocr | 0.62 | Press Cell: | 7.14 | Press Cal Gas | 2.26 | Lamp °C | - | Monocr °C | - | PMT °C | - |
| | Remarks: CO cal max values : 532 - 527 | | | | | | | | | | | | | |
| 12:20:52 | FL001 | R5 | 86.19 | 59.36 | 5116.41 | 155.349 | 74 | -0.01 | 1.11 | 1.09 | 4.98 | | | |
| | Remarks: CO cal max values : 524 - 520 | | | | | | | | | | | | | |

CORE CHEMISTRY FLIGHT LOG

| | | | |
|--|------------------------|---|---------------------|
| FLIGHT: B049 | DATE: 5/09/2004 | OPERATOR: Doug Anderson | PAGE: 2 of 2 |
| LOCATION: Northern Adriatic Sea in the vicinity of the Ocean Tower at 45o18'51"N, 12o30'29'E and area within ~ 80 miles | | PROJECT: ADRIEX – radiation flight in heavy pollution over Adriatic. | |

| TIME (GMT) | HEIGHT (Flight Level) | RUN # | CO SENSITIVITY (Hz/ppbV) | CO BACKGROUND (ppb) | CO BCKGRD.CNT.B (Hz) | CO CONC. (ppb V) | O3 (ppb) | NO (ppb) | NO2 (ppb) | NOx (ppb) | SO2 (ppb) | | | |
|---------------|---|---------|--------------------------------|-----------------------------|------------------------------|------------------------|---------------|---------------|----------------|----------------|----------------|---|--------|---|
| 12:35:23 | FL020 | Into R6 | 85.61 | 59.17 | 5065.16 | 96.710 | 79 | 0.04 | 1.08 | 1.12 | 4.91 | | | |
| | Flow Lamp: | 33.99 | Press Monocr | 0.62 | Press Cell: | 7.15 | Press Cal Gas | 2.25 | Lamp °C | - | Monocr °C | - | PMT °C | - |
| | Remarks: CO cal max values : 520 - 523 | | | | | | | | | | | | | |
| 12:50:49 | FL050 | R7 | 84.41 | 59.71 | 5040.11 | 129.943 | 69 | -0.05 | 0.94 | 0.90 | 4.13 | | | |
| | Remarks: CO cal max values : 526 - 523 | | | | | | | | | | | | | |
| 13:12:58 | FL103 | R8 | 84.14 | 59.59 | 5014.29 | - | - | - | - | - | - | | | |
| | Remarks: CO cal max values : | | | | | | | | | | | | | |
| 13:30:31 | FL150 | - | 84.98 | 58.70 | 4988.94 | 110.211 | 64 | -0.16 | 0.39 | 0.23 | 5.25 | | | |
| | Remarks: CO cal max values : 529 - 532 | | | | | | | | | | | | | |
| 14:21:13 | FL090 | - | 88.00 | 57.23 | 5036.04 | 69.671 | 54 | 0.04 | 0.20 | 0.18 | 4.03 | | | |
| | Remarks: CO cal max values : Descent to FL050 | | | | | | | | | | | | | |

Flight Manager's In-Flight Log

Flight No B...049...

Date 5.9.04

Page ... of ...

| | | | |
|------------------------------|-----------------|------------|---|
| Video Tapes | GPS | INU | DRS <input type="checkbox"/> |
| V8 | Lat 45°39.20N | 45°39.18N | HORACE <input checked="" type="checkbox"/> |
| No. | Long 012°12.11E | 12°12.13E | SATCOM <input checked="" type="checkbox"/> |
| Ends | Time 06:38:02 | 06:37:31 | |
| FFC / RFC / <u>DFC</u> / UFC | Status ✓ | ALGN | |

[illegible]